CHAPTER III
THE PLAUSIBILITY OF NATURALISTIC ACCOUNT OF PHENOMENAL CONSCIOUSNESS

3.1 The Phenomenalistic Turn

In this chapter, we are seeking to critically evaluate the plausibility of scientifically satisfactory naturalistic theory of phenomenal consciousness proposed by Carruthers in his middle career. Carruthers defends his naturalistic theory of phenomenal consciousness as a variety of dispositionalist theory of HOT as opposed to actualist form advanced by Rosenthal. He characterizes the naturalistic theory as one in which phenomenal consciousness has a

(a) Certain kind of intentional content.(he labels it as analog or fine-grained content).

(b) It is held in a short-term memory store and

(c) It is available to higher-order thoughts.

(d) Such content is realized in some down-stream consumer semantics.

As an outcome of (a)-(d) we get an aspect of seeming or subjectivity. (a) proposes naturalistic semantics in terms of ‘narrow’ content rather than ‘wide’ content;(b) explains its analog nature;(c) stipulates that such content is available for either reflexive thinking for further reflection or to higher-order thought which is later modified to read as available to awareness(introspective mind-reading).(d) is supported by evolutionary theory. Since, this theory is waiting to be modified in subtle ways; we have to explain the plausibility of the theory before moving towards an extended discussion of naturalistic theory of consciousness. The plausibility is
suspected on account of the way he moved from one ‘unified’ theory to yet another ‘unified’ theory in later years. A number of distinct notions of consciousness can be distinguished. It is useful to compare and contrast Carruthers’ and Block’s definition of different notions of consciousness to know how he finesses the tools in novel ways. The difference between epistemic consciousness and experiential consciousness has an elongated tradition. Block’s (1995) distinction between access consciousness and phenomenal consciousness, and Chalmers’ (1996) distinction between psychological and phenomenal consciousness are current variants of this conventional distinction.

As Block argues, consciousness is a mongrel notion. He proposes different notions of consciousness such as phenomenal consciousness, access consciousness, self-consciousness and monitoring consciousness. Here is how Block originally commenced the idea of phenomenal consciousness, P-consciousness [phenomenal consciousness] is experience. P-conscious properties are experiential properties. The sum of the experiential properties of a state is “what it is like” to have it. More accurately, we have P-conscious states when we see, hear, smell, taste and have pains. It is criticized that since there are experiences which are non-conscious; we can not identify phenomenal consciousness with experience.

The basic feature of access-consciousness, by contrast, is accessibility for use in reasoning and rationally guiding speech and action. The important conditions for a mental content to be access conscious are: 1) content is poised to be used freely as a premise in reasoning 2) content is poised to be used freely for control of action. In the case of human beings, major symptom of access consciousness is reportability; but it is not a necessary feature. Self-consciousness is the ability to think about oneself. Block claims that chimpanzees possess minimal notion of self-consciousness and that is proved through mark test that they show signs of recognizing that see themselves in mirrors. They show interest in
correspondences between their own actions and the movements of their mirror images. He further argues that, theory of mind is not required for this sort of minimal self-consciousness. Monitoring consciousness is a sort of consciousness according to which there are internal monitoring (meta-cognition) which takes many forms of inner perception, internal scanning and higher-order thought. Since Block criticizes any attempts to identify P-consciousness with any of these cognitive notions and for him, Carruthers’ is a theory of monitoring consciousness rather than phenomenal consciousness. Block thinks that to identify P-consciousness with internal scanning, is really tilting towards eliminativism about P-consciousness. In the case of self-consciousness and reflective consciousness, however, creature consciousness is basic but in the case of phenomenal conscious and access consciousness, state conscious is important. The distinction between phenomenal consciousness and access are as follows;

1. The P-conscious content is phenomenal, while A-conscious content is representational. Phenomenal content provides a state phenomenal aspect in virtue of which state is P-conscious, while it is in virtue of purely representational content, or the representational feature of its content that a state is A-conscious. The fundamental nature of A-conscious content is to play a role in reasoning, and only representational content can figure in reasoning. Block allows representational content to phenomenal consciousness also. For him, the content of an experience can be both P-conscious and A-conscious; the former in virtue of its phenomenal feel and the latter in virtue of its representational properties. A-conscious states are essentially transitive. It is necessary that A-conscious states are states of consciousness [of]. In case of P-conscious states; it is not a necessary feature. P-consciousness, as such, is not consciousness of.
2. Since A-consciousness is a functional concept, its content is system-relative. In other words; function of representational content in system makes a state conscious. P-consciousness is not a functional notion.

3. The paradigm P-conscious states are sensations, whereas the paradigm A-conscious states are "propositional attitude" states like thoughts, beliefs and desires, states with representational content expressed by "that" clauses. (E.g. the thought that grass is green). Carruthers finesses the distinction in what would be schematized with the help of following figure.

**Figure: 3.1 Carruthers' Different Notions of Consciousness**

Intransitive creature consciousness is treated as a simple property of person or subject. Here the term consciousness denotes the intransitive, non-relational property of a creature. It is argued that in order to conscious at a particular time, the creature should be awake at that particular time. Transitive consciousness on the other hand, is consciousness of such and such. For example, a creature is conscious (perceiving) of such and such. It is noted, perceptual content may be either conceptual or non-conceptual.
For example, some percepts of young children and animals possess non-conceptual contents, which mean even though they have perception with complex contents and filled space, they have no concept about what they perceive. Carruthers argues that perceptual contents are analog contents. Transitive creature conscious does not imply that perceptual state in virtue of which a creature is conscious is conscious itself. FOR theorists like Dretske and Tye explain phenomenal consciousness through transitive creature consciousness. According to Dretske, notion of state consciousness is already contained in the transitive consciousness. Self-consciousness has two forms; in its weak sense, it implies that creature’s awareness of itself as an object different from others. It is the capacity for transitive creature consciousness with the self qua body as object of consciousness. According to stronger sense self-consciousness is higher-order awareness of oneself as continuing mental life. It must be distinguished from higher-order forms of access consciousness, because it involves more than a capacity for higher-order thought about one’s own mental state. Access consciousness is awareness of mental state, while self-consciousness is awareness of oneself (having mental state). There are two forms of access consciousness; first-order and higher-order forms. In its first-order sense, mental content can figure in the subject’s practical and theoretical reasoning … etc. In its higher-order sense, occurrence of conscious mental state is accessible to the subject. This is again distinguished from standing state beliefs. With the above tools in hand, Carruthers claims to advance on many fronts before putting a naturalistic theory for a further review. This essentially because naturalism is based upon a ‘default’ assumption of the causal laws whereas physicalism advocates a causal closure of the physical world. The physicalist option is not thus kept in abeyance but realized in the end after extending the naturalistic theory itself.

Phenomenal conscious property, according to Carruthers, “is the property which mental states possess when it is like something to have them”. To make obvious, imagine that you are looking at a red tomato and a
green lime under good lighting conditions. There is something that it is like for you to see the red tomato and what it is like is different from what it is like for you to see the green lime. There is a subjective difference between seeing of the tomato and seeing of the lime and this difference is a difference in phenomenal consciousness. For Carruthers, there is no difficulty in the case of access consciousness, but in relating to phenomenal consciousness, there is problem. Phenomenal conscious states are states that are like something to undergo; they are states with a distinctive subjective ‘feel’ or phenomenology. Take the experiences of looking at a red rose, smelling it, feeling the thorns on its branch; these experiences all ‘feel’ a definite way as well. These specific types of feels are known as phenomenal ‘feels’ and anyone who has such phenomenal ‘feels’ is phenomenally conscious. According to Carruthers, what makes experience phenomenally conscious is the capacity to higher -order thought .For him, only human beings possess this peculiar capacity. So only human beings possess phenomenal consciousness. But, how can we know that animals are not possessing higher- thought or phenomenal consciousness. Carruthers’ argument is that animal's cognitive architecture is different from us. The argument that non- human animals lack phenomenal consciousness refutes commonsense view about consciousness. But according to Carruthers, folk psychological argument resulted from a cognitive illusion. He further adds that, there is no ground for this common sense belief. It is argued that even though animals are entertaining perceptual states, when we ask, what those mental states of animals are like, and the cognitive illusion persuades us and we naturally represent animals to ourselves in imagination ‘from the inside’. Carruthers adds: “I claim that I have, in fact, successfully explained phenomenal consciousness in terms of mental state consciousness”\textsuperscript{5}.He concludes that “this makes me a qualia-irrealist—I claim that there are no non-relational properties of experience qua experience”\textsuperscript{6}.Qualia irrealism is to subserve his critique against non-reductionist like, Nagel(what- it -is –like- to- be in that state is what -it -is –
like- to- know the view from no where scientific), Jackson(equivocate thick with thin properties) and Chalmers (impossibility of reduction, reducing it to a metaphysical explanation). Carruthers argues that it is a matter of actually possessing or being able to construct the relevant recognitional capacity. The seeds of a self model is own here.

As Carruthers argues, phenomenal consciousness is adult consciousness and it is the particular capability of mature human beings. William James argues that adult consciousness has definite universal phenomenological configuration. Daniel Dennett argues\(^7\) that in order to explicate consciousness phenomenology is irrelvant. The motivations behind his view are; 1).There is no necessary correlation between how things seen and how they are? In other words, there is no necessary connection between the phenomenological structure and actual neurological structure.2).We often mistake about the self- reporting about how things seem or feel to us. Flanagan says that, we can explain both of these problems without rejecting the phenomenological feature of consciousness\(^8\). He says “…………..unless we accept a certain amount of first- person phenomenology, the complete story of the brain will stand independent of and aloof from, any link with the story of conscious mental life which we initially sought deeper understanding of”.\(^9\) It is interesting that both higher-order theories and first-order theories try to give explanation of phenomenal consciousness through representation and it is against Block’s view that phenomenal consciousness is not a functional notion. According to Carruthers analog representational content in higher-order thought makes a state phenomenally conscious. \textit{Contra} Block Carruthers explains phenomenal consciousness through functionalism and according to him; a better variant is to introduce the theoretical concept of recognitional capacity so as to sustain a form of theory- theory. As Block maintains, access consciousness is system- relative. But for Carruthers, phenomenal consciousness is also system relative and he argues that the function of representational content in system 2 makes a state phenomenal
consciousness. Here Carruthers appears to conflate different notions of consciousness or he tries to explain one notion of consciousness in terms of other (phenomenal consciousness in terms of reflexive or monitoring consciousness). So, if the distinction between different notions of consciousness by Block is accepted as true that will leave Carruthers theory in trouble.\footnote{10}

Both Carruthers and Block maintain that phenomenal consciousness is ‘what it is like’ to be aspect of consciousness, but both of them use the term differently. Carruthers cannot accept phenomenal consciousness as \textit{sui- generis} as explained by Nagel and Chalmers. Against these thinkers, Carruthers accepts what he calls a phenomenal concept strategy. Carruthers’ account of phenomenal concept strategy must be distinguished from other phenomenal concept strategies like phenomenal concepts as indexical concepts [Perry (2001)’Dea (2002)] and phenomenal concepts as quotational concepts [Papineau (2002)]\footnote{11}. According to Carruthers, phenomenal concept is recognitional concepts of experience. A \textit{recognitional} concept is different from \textit{theoretical} concept and can be applied directly on the basis of perceptual or quasi-perceptual relationship with its instances. Phenomenal concepts are not merely recognitional, but purely recognitional with the following features. A concept is purely recognitional if it is both applied directly to instances and if it is conceptually isolated from other concepts. A concept is \textit{purely} recognitional when its possession-conditions (in the sense of Peacocke, 1992) make no appeal to anything other than such acquaintance. A concept is purely recognitional when nothing in the grasp of that concept, as such, requires its user to apply or demand to any other concept or belief. A \textit{purely} recognitional concept of experience is then a higher-order recognitional concept, which applies to another mental state (viz. an experience), and whose possession-conditions don’t presuppose any other mental-state concepts (not even the concept \textit{experience}). So through this characterization, however, there still may only be the two different \textit{concepts} referring to one and the same \textit{property}. On the one side,
we are dealing with scientific third-person concepts and, on the other, we are employing phenomenal concepts. We are, perhaps, simply not in a position to understand completely the connection between the two. Carruthers argues that having subjective feel (in our case, at least) is just for it to be present to a faculty of higher-order thought with the power to recognition. Both Tye and Carruthers claim that phenomenally conscious states are states that each of us can immediately recognize in ourselves, directly, without having to engage in any kind of inference.

Tye says “………… the concept of a thought that \( p \) is, in its first-person present-tense application, a *recognitional* concept. Phenomenal concepts—the concepts that enable us to form a conception of phenomenal character via introspection—are, in my view, recognitional concepts of a special sort”.\(^{12}\) Tye presents his rival theory with the features of theory of phenomenally conscious mental state as PANIC theory\(^{13}\). The structure is briefly schematized as below:

Figure: 3.2 Features of PANIC Theory

<table>
<thead>
<tr>
<th>1 Poised</th>
<th>2 Abstract</th>
<th>3 Non-conceptual</th>
<th>4 Intentional content</th>
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<tbody>
<tr>
<td>Phenomenal individuated in terms of functional/causal roles(first-order) available for guiding action</td>
<td>Confuses between particular/generic and abstract and concrete</td>
<td>Not expressed in terms of that clause (e.g. proposition)</td>
<td>Individuated in terms of representational content</td>
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Carruthers criticizes each one of the above features of Tye’s theory. (That will discuss more elaborately in coming section). According to Tye’s (1995) supposition, the phenomenal character is one and the same as representational content that meets certain further conditions. Tye considers experience as transparent and advocates that visual phenomenal character is representational content of a definite kind, content into which certain external qualities enter. This explains why visual phenomenal character is
not a quality of an experience to which we have direct access (representational content ≠ quality of the thing that has representational content) and why visual phenomenal character necessarily changes with a change in the qualities of which one is directly aware (changing the qualities changes the content). Awareness of a ‘feel’ is not direct awareness of a quality of the experience. It is awareness that is based upon direct awareness of external qualities without any inference or reasoning being involved. Tye says “the phenomenal concepts I apply and the features to which I apply them are the same in both the perceptual and the introspective cases’ ¹⁴, that is, red or experience of red, involves same concepts. But this won’t do as Carruthers argues because for him, the recognitional judgment of colour is one thing, recognitional judgments of experiences of colour is quite another thing. The distinction between worldly and experiential subjectivity is too important be ignored.

Tye rejects the traditional anti-reductionist view of qualia as qualities of the experiences. Phenomenal quality is only a directly available quality of an experience. So it is important to note that, Tye does not reject that there are qualities of which the subjects of visual experiences (or bodily sensation) are directly aware via introspection. They are qualities of external surfaces (and volumes and films), not the qualities of the experience. More accurately, the qualities of which we are directly aware via introspection—whatever they turn out to be—are not qualities of the experiences of hearing, smelling, and tasting, rather they are qualities of public surfaces, sounds, odors, tastes, etc. If they are qualities of anything at all, we can call these qualities of external surface in the case of visual perceptual experience as ‘phenomenal qualities’ in a less limiting sense of the term. Tye argues further that, these qualities of external surfaces, by entering into the suitable representational contents of visual experiences, supply phenomenal character of the experiences. Tye defines phenomenal consciousness as the occurrence of a distinctive kind of intentional content, figuring within cognition. The structure of cognition is functional according to him. In this
sense, he considers the nature of cognition as functional. Tye defines, that M acquires a phenomenal character when it is poised to make the “right sort” of impact on beliefs and desires. Tye (2000) maintains that, this condition [i.e., that M be poised] is essentially a functional role one. The basic idea of Tye is that experiences and feelings, qua bearers of phenomenal character, play a certain unique functional role. Experiences are poised to make a straight impact on beliefs and/or desires. Carruthers argues that, phenomenally conscious events are ones for whose properties we can possess introspective recognitional capabilities. As Carruthers argues, there is no private, ineffable property of our experience. We have only recognitional concepts which all individual share.

An important step here is naturalistic account of semantics. Carruthers analyses three important forms of naturalistic semantics in this connection. They are:

1. Informational or causal co-variance semantics
2. Teleosemantics
3. Functional- role semantics

According to the first theory, meaning is carried by the causal relationship between states of the mind (such as signs in mentalese) and the world. Whenever there are causal covariances in the world, one state of information causes information about another. The second theory claims that mind and body are evolved systems and each of our mental states has proper functions. Functional- role semantics is related with inferential or functional- role of mental states within cognition. it reduces the representational role to the functional or inferential role in which a mental state normally has within cognition. Three of these theories try to give a fully reductive explanation of intentional content. But Carruthers argues that naturalization requires neither reduction nor successful reduction. For him, in order to elucidate the natural reality of intentionality or phenomenal
consciousness, it is sufficient to show that intentional properties or phenomenal conscious properties are presenting to some set of causal laws. Intentional properties are predicate terms of both folk psychology and scientific psychology. Carruthers argues that in order to accept biology as science we cannot demand successful reduction of biology into chemistry. Likewise in order to explain intentional content, we needn’t aim any successful reduction of it. Carruthers maintains that reality of causal-intentional psychology is sufficient to ensure the natural status of intentional content. The basic traits of phenomenal consciousness such as a) subjective aspect (phenomenal feel) (b) intrinsic (non-relational essential quality) (c) ineffable (indescribable and incommunicable) (d) private (accessible only to mind) (e) infallible (and not just privileged) are thus quarantined in his approach. Thus (a) - (e) marks the qualia realist approach. The explanatory power of our theory should explain them in the appropriate way. This is Carruthers aim.

3.2 Counterpoising Higher-Order to First-Order Theories

Against the above claims, Carruthers adopts the qualia irrealist stance with the following features before counterposing higher – order with first-order theories. The qualia realist argues that phenomenal properties are intrinsic and non-relational properties. As qualia irrealist, Carruthers argues, that phenomenal properties are recognitional concept of experience. Our temptation to believe in qualia as intrinsic non-relational, private ineffable property of experience is result of confusion between ‘property’ and ‘concept’. Carruthers says that conscious states are available to higher-order representation or thought is enough to explain away the qualitative feature of consciousness. His argument runs like this: if qualia exist, then it is very difficult to see how any lower-level physical facts could ever reductively explain them. It seems problematic that how representational content, patterns of causation etc explain the existence of qualia. So he rejects the existence of intrinsic and non-relational properties of subjective experience.
According to Carruthers, the defining feature of an experience is its distinctive feel; not its distinctive relational properties or causal role. HOT model of consciousness provide all impetus to explicate phenomenal consciousness as non-inferential immediate, recognitional capacity. As HOT theory suggests, the system will be capable of recognizing the fact that it has an experience as of red, same direct non-inferential way it can recognize red. Carruthers argues that, much of our self-knowledge should be thought of as analogous to the theory – laden perception of theoretical entities in science.

The second criticism comes from privacy and ineffability of subjective feelings. On the issue of privacy of phenomenal experiences, it is argued that recognitional instances of feeling concepts cannot be revealed to another person and the effort to explore it in relational terms will miss the fundamental nature of phenomenal consciousness. Carruthers argues that the temptation to believe that phenomenal feelings are private is mistaken and the similar causal roles behind the perceptual experiences and the common physical realization of perceptual states indicates that the detailed functional organization each individual member will be same. For example, ‘A’ and ‘B’ sharing same subjective experiences of red when they are looking to a ripe tomato because they will be in a same state with same narrow content. While explaining the putative ineffable nature of phenomenal consciousness, Carruthers claims that successful communication needs only that hearer should grasp same truth condition of the speaker possess and it is not necessary that there exist same mode of presentation. Communication is about properties and states of affairs rather than concepts and mode of presentation. The relational descriptions provided by HOT theory have evidences from physical properties of brain which happen to occupy particular representational and causal roles. Carruthers is a naturalistic realist about phenomenal consciousness but a qualia irrealist or he does not accept qualia in its strong sense (intrinsitic, ineffable, private infallible qualia).
Carruthers concedes that there may be concepts of experience which are purely recognitional, and so these are definable in relational terms. He concedes that there are some concepts of the mental which cannot be analysed in terms of functional representational role, but is purely recognitional. But the business of HOT theory is substantive theory development rather than conceptual analysis and it provide the nature of phenomenal concepts and the properties of the phenomenal experience.

According to HOT theory, the properties of phenomenal consciousness are experiential property and it in effect possesses a narrow content. On the contrary, the worldly properties which are picked out by purely recognitional concepts of experience are not themselves, similarly simple and non-relational. Carruthers claims that there are no non-relational properties of experience qua experience. They are relational properties. In other words, we can explain it through its availability to higher-order representation. Carruthers’ qualia irrealism is not altogether rejection of qualia. But he says that in higher-order representational terms, there are no qualia or qualitative aspect of consciousness. Carruthers argues that the story of phenomenal consciousness is the story of HOT system generated by ToM( theory- of –mind). HOT theory denies qualia, because subjective properties of experiences are constituted by the operations of an appropriate HOT system.

Further, Carruthers makes a distinction between ‘thickly’ and ‘thinly’ individuated facts, which he later uses for advancing specific arguments for the closure of explanatory gap. It is noted that, the term phenomenal consciousness can be used in two ways related its individuation conditions. In the ‘thick sense’, the fact that I am holding up five fingers, and the fact that the number of fingers I am holding up is the smallest prime number larger than three, are the same fact. But in ‘thin sense’, whenever we use distinct concepts in characterizing a fact, we have thus described a distinct fact. phenomenally-conscious”. Thus mean either just phenomenal, i.e., having a
qualitative character, or more strongly, having conscious qualitative character in that the subject is aware of that phenomenal property. Carruthers says it is one thing to say that the world takes on a subjective aspect by being presented to subjects with differing conceptual and discriminatory powers, and it is quite another thing to say that the subject's experience of the world also has such a subjective aspect, or that there is something which the experience is like. Carruthers says that felt nature or experiential subjectivity of phenomenally conscious experiences is really hard problem.

In relation to these strong and weak forms of phenomenal consciousness, there is a pair of distinctions that mark important differences between accounts of phenomenal consciousness. The first distinction is between intentionalism (or representationalism), and phenomenalism. We can use phenomenal consciousness in two senses; in the first sense, it means just possessing a qualitative character or just phenomenal. This view of phenomenal consciousness is known as phenomenalism. In the second sense it means, having conscious qualitative character in that the subject is aware of that phenomenal property. This view implies the existence of qualia or phenomenal property. This view is known as intentionalism. According to intentionalism, phenomenal consciousness is entirely intentional or representational. Less imprecisely, and restricting attention to perceptual experiences, intentionalism implies that facts about the representational content of an experience together with facts about the representational content of the subject's other mental events or states that fix or determine the facts about its phenomenal character. In other words, intentionalism implies that phenomenal character supervenes on representational content. Phenomenalism rejects the supervenience thesis that phenomenal character supervenes on representational content. One standard argument against intentionalism is based on an inverted spectrum thought experiment which is claimed to be a case of same representational content, yet different phenomenal character (Shoemaker 1981, Block 1990). Phenomenalism is
the weak view and intentionalism is the strong view. Carruthers concedes that we have concepts of experience which do not conceptualize those experiences as analog intentional contents made available to HOT faculty. But the duty of dispositionalist HOT theory is not conceptual analysis but naturalistic explanation of the properties of experiences (felt properties).  

With all these considerations, Carruthers counterposes his theory to the first-order theory. For this, we should understand that naturalistic explanation in both first-order and higher-order representational terms. There is a fiery debate over which theory is very appropriate for the explanation of mental state consciousness including phenomenal consciousness. Since both HOR and FOR theories taking part in this debate, it is very interesting that both theories attempt to explain the nature of mental state in terms of representational terms. But HOR theory also considers the mental states causal functional relation to higher-order cognitive states (such as ToM). The contents of these higher-order cognitive states deal with or about the mental state in question.

Carruthers counterposes first-order theories of Tye (1995, 2000), Dretske (1995) and Kirk (1994) with his second-order theory. Both Tye and Dretske argued that phenomenal conscious experiences are the output of the perceptual system and that in turn balanced to have an impact on subject’s belief and practical reasoning process, such a manner to direct the behaviour. Kirk for example argues, not all representational states are phenomenally conscious ones. But only the representational states that are present to right sorts of decision making systems or process acquire phenomenal character and hence become conscious. More accurately, a representational state M to acquire a phenomenal character, (hence become conscious), M must be present to the "right sorts" of decision making processes. Whether a representational state is conscious or non-conscious is determined by the functional process behind it. Being available to certain decision making processes and being poised to make an impact are both
functional role properties. So in both cases, what distinguishes M from a non-conscious state otherwise similar to it is an aspect of M’s functional role. According to Tye, our pains and bodily sensations are representational in nature. In case of pain experience, it represents to us a particular perceptible property of our own body.

Carruthers rejects all the following three arguments in support FOR theory. 23

a) A powerful consideration in support of FOR theory and against HOR theory is the transparency of perceptual experience.

b) Another argument support of FOR theory is that great many animals besides human beings have capacity of phenomenal conscious experience, while HOR rejects phenomenal consciousness to animals.

c) FOR can provide evolutionary explanation of the phenomenal consciousness.

Carruthers distinguishes worldly subjectivity from experiential subjectivity. The former is the property of the world whereas the latter is the property of the organism’s experience of the world. Higher-order theories should differentiate two views of subjectivity namely; worldly subjectivity (phenomenal properties of the world) and mental-state subjectivity (phenomenal properties of the subject’s experience of the world). Carruthers uses the word subjectivity of phenomenal consciousness (that should be explained) really in the sense of experiential subjectivity 24. He says FOR theories “can almost certainly provide a successful explanation of worldly subjectivity…it is very difficult to see how the further, additional, subjectivity of (some) experience can be explained without introducing higher-order representations (HORs) into the account”. 25 That is, the FOR theorist can provide a naturalistic account of, say, colour vision—worldly subjectivity. But it cannot provide a naturalistic account of experiential subjectivity—what it's
like for an organism with colour vision. The so-called hard problem of consciousness tied with this experiential subjectivity and Carruthers argues that no correct solution is proposed to this by first-order theory.

Since FOR theory cannot differentiate worldly and experimental subjectivity it cannot explain subjective and or what it is like to be aspect. He argues that, FOR theory fails, because it cannot really explain the feel or what it is like to be aspect of phenomenally conscious experience. They cannot discriminate between what the world is like for a creature and what the organism's experience of the world is like for the creature. For example, they are confusing between what colour is like for an organism with colour-vision, and wrongly argues that, colour vision has the capacity to explain the former, that is, 'what it is like to be' aspect of organism's experience. So Carruthers' criticism to FOR is centered on its first-order ness. Carruthers argues that, the fact that a mental state of mine is poised to do such and-such, or is present to so-and-so processes and mechanisms, does not explain why there should be anything it is like for me to have that state. A type of phenomenal character could be entirely tied with a type of functional role. But here we should note that FOR theory explain what it is like to aspect in its worldly subjectivity version (Carruthers also supports this view). FOR theory fails because it explains phenomenal consciousness through first-order representational terms. According to FOR account, the difference between a red and white is the difference between the first-order properties represented.

Another problem of FOR theory that interconnected with the above discussed problem of distinction between worldly subjectivity and experiential subjectivity, is that there is a distinction between conscious and non-conscious mental states. Any adequate theory of consciousness must account for this distinction. This constraint applies to FOR theories also. Specifically, the first-order theorist must provide an account that specifies what it is about a representational state that makes it conscious rather than
non-conscious. But FOR theory does not have the resources to do so satisfactorily. Although FOR theorists distinguish among the phenomenal characters of different conscious states in terms of what in the world these states represent, they distinguish conscious from altogether non-conscious states in terms of what functional role these states play. For Carruthers, it is the FOR theorist’s appeal to functional role to explain phenomenal experiences that is problematic. He asks: how can the mere facts that a [representational state] is now in a position to have an impact upon the decision-making process [or beliefs and desires] bestow it with the subjective properties of feel and “what-it-is-likeness” distinctive of phenomenal consciousness? The answer is that it cannot. It seems the actual problem facing theories of phenomenal consciousness is ‘what is the distinctive feature of phenomenal consciousness’. Both FOR and HOR agree that phenomenal feel (subjectivity) makes a mental state conscious. But they disagree on the issue of real nature of ‘subjectivity’. Carruthers concludes that, phenomenally consciousness states possess experiential subjectivity and it cannot be explained through first-order terms. HOR theory maintains that for explaining experiential subjectivity we need something more than first-order representation and maintain that state which meta-represent subjects states (higher-order representation) are compulsory for possessing the subjectivity.

A powerful commonsense and scientific case can be made for the existence of non-conscious states. Carruthers put forward evidences from common sense, scientific psychology, and neuropsychology to defend his hypothesis that there exist a two-layered mind consisting conscious and non-conscious experience. Cases from common sense include absent-minded perception, experience during sleep, sleepwalking etc. The scientific evidence for the existence of non-conscious states includes cases from blind-sight, action-guiding visual subsystems, and the like. For example, while I am typing this piece of paper I am not paying conscious attention to the sound of keyboard. In this case I display sensitivity of my
environment which I do not consciously heard or perceive. Carruthers says commonsense intuition of two layers of mind of conscious non-conscious mental states is hurdle against FOR theories because they cannot explain why one experience is conscious and other is not conscious (even though they share same first order representational content).

For example, Dretske\textsuperscript{30} denies that there is no such two-layered cognition of conscious and non-conscious. He argues that blind sight person have beliefs about his environment without having any sensory awareness of the environment. Carruthers claims that it support the view that there are two analog representational systems, one responsible for tracking the movements and positions of objects to guide action and the other is for conceptual recognition. Dretske argues that blind sighted chimpanzee was able to pick up quite small objects from the floor she could not tell whether it is stone insect or something without putting it in mouth. Carruthers argues that she lacks a conceptual recognition. In the case of absent-minded driver, Tye argues that absent-minded driver lack access conscious while phenomenally conscious experiences are concealed from him. For Carruthers, it seems that Tye is endorsing the view that there is a non-conscious phenomenality. Tye wants to claim that there exists only worldly subjectivity. Thinkers like Dennett (1991) and Kirk (1992) argue that these types of phenomena can be explained in terms of instantaneous memory loss. (Rather than as an instance of non-conscious perception). As this explanation suggests, we are concentrating so intensely upon other things, no space is devoted to these perception, in memory even in the short term. There are two hypotheses related to absent-minded perception. The first is that, absent-minded activities involves percepts which are only briefly remembered. The second hypothesis is that absent-minded activities are not held in memory at all.

Dennett supports the first one, while Carruthers argues for the second one and maintains that former explanation will suit for some cases. For him,
there are cases where we can recall nothing even when we are probed at the time. So the opponents of non-conscious experience bit the bullet and should claim that there exist perceptions, which are conscious at an instant without any memory at all. According to HOR theory, there is two different routes through cognition a non-conscious route (in which perceptual information are made available to a variety of action schemas and for online guidance of movement.) and conscious route (in which different sets of perceptual sets are made available to higher-order representation). Carruthers endows superior position to HOR theory and for him, all the varieties of HOR theory can provide a plausible account of the distinction between conscious and non-conscious experience. FOR theories are rejected because of their externalist, reductionist causal co-variant semantics,(which is not acceptable to Carruthers and also he is not favored to naturalization of semantics)\(^3\). Carruthers accepts partly reductive position of narrow content elucidated in terms of some form of consumer semantics and claims that functional and evolutionary explanation supports the dispositionalist HOT theory\(^32\).

According to first-order representationalism (FOR), the phenomenal nature of a conscious mental state M is accounted for in terms of M's representational content According to transparency of perceptual experience, when we try to concentrate on the quality of experience about some particular object, we are really concentrating on the quality of object itself. It is a criticism to higher-order theory, since transparency of conscious experience is to count as dominant support for FOR. There are two versions of this thesis: one is the representational transparency thesis and other is first-order transparency thesis. According to the first, there are no introspectible, non-representational features of sensory experiences: when we introspect a sensory experience, we are not aware of any feature of our experience over and above, those features which our experience represents\(^33\). The second is stronger than first, according to which, when we introspect a sensory experience, we are aware of first-order features which
our experience represents. There are no features beyond these first-order features. The first-order transparency thesis is stronger than the representational transparency thesis in that it entails, but is not entailed by; the latter\textsuperscript{34}. Carruthers can tackle the problem put forward by first-order representationalist. The part of his project in phenomenal consciousness is to explain away those putative introspectible, non-representational features of experiences.\textsuperscript{35}

The superiority of higher-order theory over first-order theory is thus established and let us now moves to the dispute between different forms of HOR theory. First is the well-known form of higher-order perception theory is so-called ‘inner sense’ theory (HOE) is commonly credited to John Locke (1690). It was reintroduced in modern world by Armstrong (1968), and has been defended in recent times by Lycan (1987). HOE theories are inner sense model of phenomenal consciousness. As HOE theory suggests, there exist a set of inner scanners directed at our first-order mental states. That means our inner sense has the capacity to construct the representations of some of our mental states, not merely the representation of the world. For Armstrong; consciousness is not a mere awareness. According to HOE theorist there is no phenomenology distinctive of introspection. For Armstrong, introspective consciousness is a perception-like awareness of current states and activities in our mind. The current activities will include sense perception, which latter is the awareness of our environment and our body. And introspection itself becomes the object of introspective awareness.\textsuperscript{36} Introspection happens when these particular HOTs are themselves targeted by another HOT. There is phenomenology unique to introspection. For Lycan, consciousness is the function of internal mechanism, the duty of which is to relaying and/or coordinating information about on going psychological events and process. Lycan argues that, being voluntarily controlled introspective attention we can shift attention between different regions of our visual or bodily field. Carruthers criticized that this process is merely first-order in nature. That means we are shifting our first
-order attention and it does not give any support to HOE theory. According to HOE theorist, there exist some sort of inner scanners, duty of which is to construct analog representations of the origin and properties of our first-order mental states. HOE theorist argues that, they have some definite purpose of which is scanning and constructing representation of the world and representation of the states of our own bodies. More accurately, there exist certain systems whose function is to scan and construct representation of our own mental states.  

One of the important criticisms to HOE theory comes from one ancestral HOT theory (Rosenthal (1993) that all phenomenal conscious states are not introspected states. For example, when I am watching the football, I can be paying close attention to the movements of the players and as a result I enjoy phenomenally conscious experience. In this case, all my attention can be directed upon the game rather that on our experience of game. Rosenthal argues that I need not be paying attention to the color of jersey of players, or the height of players etc and he is distinguishing periphery awareness from phenomenal consciousness. It is criticized that HOE theory take too lightly of the fact that internal monitors necessitates the computational complexity in order to generate HOEs. That means the mechanism must generate a set of internal representations with a content representing content of that experience. Lycan argues that we have good reason to believe that we ourselves (human beings) exhibit that degree of complexity and he offers argument from introspection that our introspective attention is under voluntary control. We can shift our attention with a notable degree of skill and accuracy. This voluntary control of action is like scanning and monitoring rather than just thinking. And surely something cognitive, and presumably something neurophysiological, subserves it. According to Carruthers the third-order sensing would not produce any further phenomenology. For him, phenomenal consciousness has been already produced after the second-order sensing. In order to go through this
difficulty a HOE theorist should deny that we have third-order sensing that in
effect make him a HOT theorist.\textsuperscript{40}

### 3.3 The Structure of Reflexive Thinking Theory: It’s Empirical Inadequacy

Carruthers journey towards an advanced theory of consciousness (RT theory) contains two distinct steps; first steps and second (-order) steps. This may be counted as cornerstone of his theory. The first step for a viable theory of consciousness contains following desiderata: \textsuperscript{41}.

(i) Distinction between conscious and non-conscious perception

(ii) Distinction between conscious and non-conscious propositional attitudes.

(iii) Cartesian consciousness that could integrate ontological epistemological and semantic claims.

(iv) Critique of Kirk’s minimalist theory that equivocates conscious states with its phenomenology.

The essential feature of the best theory of consciousness is the satisfactory explanation of the distinction between conscious and non-conscious mental states. As Carruthers assumes, this distinction is equally applicable both perceptions and propositional attitudes. Examples to non-conscious perception includes routine absent-minded activities (like washing, driving walking etc), blind-sight and sleep walking. Then let us look at some examples of non-conscious propositional attitudes. For example, chess player’s belief about rules are non-consciously activated while he is playing but when explaining them to a beginner they are consciously activated.

Descartes and Kirk treat the distinction between conscious and non-conscious mental states as we have seen overly simple. The Cartesian account of consciousness can be analyzed in to three essential claims such
as ontological, epistemological, and semantics. The first claim endorses that conscious mental states are independent from physical states. The second claim is about the transparency of mind, that we can introspect our own mental states. So according to Cartesian epistemology introspection gives us infallible knowledge. Carruthers says, we can immediately recognize certain imaged sentences in virtue of the way they feel to us. The third claim stand for the view that conscious mental states are simple, non-relational, recognitional concepts acquires through introspection. The semantic thesis implies that the distinction between conscious and non-conscious mental states is based on whether they have a feel (phenomenology) or not. Carruthers claims that, the Cartesian notion of conscious non-conscious distinction is not acceptable because of several reasons. For example, we can have concepts of mental states which we never enjoyed of the sort of; belief that P belief that P&Q belief that P&Q&R and so on. Even though Carruthers rejects Cartesian semantics thesis, the weaker thesis is an option before him that the distinction between conscious and non-conscious mental states is simply a distinction between mental states which possess phenomenal feel and which does not possess phenomenal feel. Carruthers argues that we possess recognitional concepts for at least our conscious experiences. But these concepts are embedded in within the network of relational beliefs about the causal structure of mind.

Carruthers criticizes Kirk’s minimalist theory (which argues that in order to be conscious a mental state must be available to creature’s central decision making system) and claims that it is not necessary that central systems is a decision-making and Kirk failed to consider the view that the subjective feel of experience presupposes a capacity for higher-order awareness. A capacity to discriminate between experiences presupposes a capacity to think about one’s own thought. So the capacity for higher-order thought is pre-requisite for a perceptual state with phenomenal feel. The case for higher-order theory according to Carruthers is as follows:
1. Subjective qualitative feel is the peculiar feature of conscious experiences.

2. It is conceptually necessary condition for there to be subjective feel to experience, that the subject should be capable of discriminating between its experiences, as such.

3. It is naturally necessary condition for discrimination between experiences, that the subject should be capable of thinking about its own experiences.

4. It is naturally necessary condition for thinking about its own experiences that the subject should be capable of distinguishing between appearance and reality.

5. It is naturally necessary condition for distinguishing between appearance and reality that the subject should be capable of thinking about its own thought.

From the above, Carruthers proceeds to remark that it is naturally necessary that language is involved in our conscious thinking. A more exact formulation of the above is that the architecture of human cognition is such that human conscious thinking involves natural language, out of natural necessity (emphasis added). There are four types of natural necessity thesis:

1. NNw: language is a vehicle for conscious thought (language and thought are co evolved. But psychological evidences go against this.

2. NNs: language is lingua franca of the mental (mentalese): Syntax is first-order predicate logic; semantics is truth evaluation, uses representation and computation (sentence like).

3. The Joycean machine: language is serial process (mind is centre of system 2). It is narrative grativity.
4. The Vygoskian: Machine-like language is both serial and parallel process (system in its inner speech)

This leads him to review the variety of higher-order theories in the second (-order) step. As a second (-order) step towards a theory of conscious or to set a way for a correct theory of consciousness (RT theory) Carruthers analyses four different HOT theories. According to him, in general we can classify higher-order thought theory into as follows;

**Figure: 3.3. Classification of Higher-Order Thought Theory**

![Diagram](image)

Actual higher-order beliefs (thoughts) are activated ocurent events which are actually represented in the brain. The Dispositional or potential belief means that they are merely apt to be caused or activated by the conscious mental states if circumstances demand.

**Theory: 1: Actual and Conscious**

This theory supposed to work as follows;

Any mental state M, of mine is conscious = M(level 1) causes the belief (level 2) that I have M, which in turn causes the belief(level 3) that I believe that I have M, and so on (every state in this series of level n causes a higher-order belief that level n+2)

As this theory maintains, conscious states are those which cause or apt to cause a belief in their own existence. More elaborately the present theory defends that conscious experiences (level 1) are those which cause (or apt to cause) a belief (level 2) that there is such an experience taking
place; that conscious beliefs are (level 3) those which cause (or apt to cause) a belief (level 4) that one has a belief. This theory is considered as higher – order because conscious status of a mental state is determined by whether mental states are explained in terms of mental states which are about it. Carruthers states his objection to this theory as follows

a) The *Infinite regress*: As this theory argues, a conscious mental state would require me to have at the same time, infinitely many other distinct beliefs. It is plainly impossible that each level in this infinite series must be explicitly encoded in the brain.

b) The *Phenomenological objection*: A more devastating objection could be: If I have P, it is necessary that I also entrain the conscious thought that I am having that P. This is plainly wrong to defend that conscious mental state requires actual conscious thinking about targeted mental states. There is no conscious thought that I am having a conscious thought.

**Theory: 2: Actual and Non- Conscious**

The present theory avoids the above mentioned difficulties of infinite regress and phenomenological overload. Theory can be stated as follows:

Any mental state M, of mine is conscious = M is actually causing an activated belief (possibly non-conscious) that I have M.

The main criticism to this theory is that it is liable to what Carruthers calls the ‘cognitive overload problem’ because according to this account, in order to be phenomenal conscious we require a separate activated higher-order belief for each of distinct feature of our experience (For example, distribution of trees, road, and paddy field and so on). If actualist HOT theory is right, our HOT would have to re-represent an enormous amount of information. The huge amount of our cognitive resources can not be supported by the evolutionary standpoint. Carruthers argues that, this is not a phenomenological overload but a cognitive overload problem and he criticizes that actualist theorists like Rosenthal who mistakenly considered
this as phenomenological overload problem. The real problem is the improbability of supposing that so much of our cognition should be engaged with creating and processing the immense collection of higher-order thoughts required rendering our experience conscious at each moment of our waking lives. Carruthers upholds that the existence of the special-purpose short-term memory store is necessary to stay away from the problem of "cognitive overload," which outbreaks actualist HOT theories. This suggestion avoids the problem by providing an actual place for the presence of the rich detail of conscious experience, while avoiding the need for that experience to be fully conceptualized by HOT.

**Theory: 3: Potential ad Non-Conscious**

This theory is stated as:

Any mental state M of mine is conscious =M is disposed to cause an activated belief (possibly non-conscious) that I have M.

Even though this theory provides explanation of richness of experience the major difficulties remain. Carruthers objections to this theory are as follows;

It can't provide sufficient condition for conscious belief and cannot able to solve the difficulties raised by utilitarian examples. For example, I do not consciously believe that actions should be judged in terms of greatest happiness to greatest number. Any belief which I am consciously believe cannot be subject to self discovery. In this case, dispositions to have an activated higher-order belief that I have a given belief cannot be sufficient for conscious believing. Another related problem is that, it does not require that mental states are available to conscious higher-order belief.
Theory: 4: Potential and Conscious

Any mental state M, of mine is conscious = M is disposed to cause an activated conscious belief that I have M

This theory is supposed to work as follows;

Any mental state M, of mine is conscious = M(level 1) is disposed to cause the activated belief(level2)that I have M, which in turn disposed to cause the belief(level3)that I believe that I have M, and so on (every state in this series of level n disposed to cause a higher-order belief that level n+2)

This theory is poised to overcome the entire problem faced by above mentioned three theories. Like the theory 3 the present theory is also dispositional. So it avoids the cognitive overload problem. It also avoids infinite regress problem because it is dispositional account. In order for my belief that P to be conscious, it is necessary on this account, that I should be disposed to believe consciously that I belief P which in turn requires that I should be disposed to believe consciously that I believe that I believe that P and so on. The resultant theory comes to close to reflexive thinking theory of consciousness, which Carruthers has in mind. The Reflexive thinking theory enjoins that, we can entertain a thought, think about what I have just thought, think about that thought in turn and so on indefinitely in principle. Carruthers represents his reflexive thinking as follows:
The arrows up and down between C and reflexive thinking illustrates that each occurrent thought about the contents of C will itself presented to additional thought. The arrow from belief to reflexive thinking represents that standing-state beliefs are conscious by virtue of their aptness to be tokened in occurring acts of thinking with same content, where those thinking are themselves conscious. The arrow from theory of mind to reflexive thinking shows the particular occurrent thoughts can draw on the resources of the theory of mind. In RT theory; consciousness is defined in terms of availability (accessibility) to conscious thinking. The reflexive feed-back loop down to C (explains how consciousness is defined in terms of availability to conscious thinking) is considered as the one of the advantage of RT theory. According RT theory standing state (beliefs and desires) becomes conscious when they apt to emerge in conscious occurrent judgement with same content. According to Carruthers, conscious thinking has a executive role to play in life and cognition. The model of human cognitive architecture proposed by
Carruthers possesses five distinct features: 1) Introspective datum 2) RT theory of consciousness 3) Innate theory of mind that is presupposed by the activity of reflexive thinking 4) imagination 5) language\(^6\). So for him, following features should be highlighted in a good theory:

1. The thought is available to consciousness;
2. The availability is due to the short term memory store (this avoids regress);
3. The thought and thought about content must have same content;
4. The thought enables us a self-ascriptive content to us;
5. This is done by a theory of mind which tells that we have self knowledge;
6. The thought so understood must be determinate\(^7\).

Here Carruthers raises the question as to ‘what is the role natural language in human cognition?’ Language faculties have to play a double role in cognition; role of a peripheral module of the mind and executive role in central cognition (considerably engaged in different central cognitive roles, including conscious propositional thinking and reasoning.). So Carruthers prefers a cognitive conception of language rather than communicative. Following Fodor he accepts a modularist version of language. Carruthers uses the term ‘module’ in a different sense that of Fodor and Fodor’s thesis of modularity of peripheral system is replaced with ‘moderately massive’ modularity (Fodor’s module: input out put machine like structures based upon a central (informationally unencapsulated) peripheral (informationally encapsulated) central module is non-modular (consciousness) and peripheral modules form a set. Fodor enumerates a number of features, which are not looked upon with favour by Carruthers. Language has a cognitive role as well as communicative role. For him, not all thoughts are

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constitutively involve language; but only (some) our conscious thinking take place in the medium of natural language sentences.

Carruthers partially agreed with Fodor that the propositional attitudes (beliefs desires and so on) are best understood as relations to sentences and he defends the view that much of our thinking takes place in natural language sentences. Carruthers proposes an intuitive introspection based argument for the claim that human conscious thinking involves sentences of natural language. He says that evidences from scientific psychology such as evidences from normal language development of children, evidences from abnormal developments (wolf children) evidences from aphasia are inconclusive or equivocal. First, he analyses the evidences from normal development such as, linguistic and cognitive abilities of young children usually build up together. That means when language is advanced cognition will be also advanced, when language is delayed then will be cognitive capacities. For example, it argued that children's language abilities and capacities to pass false belief task is correlated. But Carruthers says that this does not support a constitutive connection between language and cognition. It only shows that language is a necessary condition for certain kinds of thought. So Carruthers finds it difficult to maintain a parallel development of cognitive and linguistic capacities because it does not imply a constitutive connection. It is argued that, sometimes language development lags behind the conceptual and cognitive development. Sometimes child's capacity for thought goes beyond what it is capable of expressing language. It does not show that thought is independent of language. For example, a two year old child uses 'bus' sometimes mean "that is bus" and sometimes mean "I want to get in bus". This example shows that the child is poor in its language production not in language ability itself. The production and comprehension are concerned with different sub systems. Further, Carruthers argues that it does not show that language is not directly implicated in our thinking because it does not follow that child can entertain those thought independently of the use that sentence.
Carruthers concludes that that the evidences from abnormal development do not provide genuine evidences to for or against the constitutive connection between language and cognition. For example, the cases of wolf children or pre-signing deaf children can be taken as a support to both communicative and cognitive conception of language. More elaborately, from the standpoint of cognitive conception of language, impairment of cognitive capacity is resulted from deficiency of language because; more complex forms of human thinking actually involve use of language. But communicative conception of language views it as evidence of independence of language from thought and argues that reason for cognitive impairment in particular individuals is that they lack many normal human concepts and beliefs that are attained through enculturation and linguistic communication. So Carruthers argues that evidences from abnormal development are also inconclusive or ambiguous.

He suggests empirical arguments to support this claim. So his argument is inference to the best explanation of an array of phenomena that means, they are susceptible to counterattack from those who can offer additional intractable data, and may logically be abandoned by anybody who can supply a better elucidation of the phenomenon in question. Carruthers analyses some intuitive objections to the four possibilities stated above and explains away all of them. They are as follows;

1. There may be flash like thoughts in us; which are apparently determinate but in this type of thought there is no time to any sentence expressing that thought to be created and without such sentence being introspectively accessible

2. We often aware of a thought or entraining conscious thought without any sentence figuring amongst the data available to introspection

3. The tip of tongue phenomena, which propose that there is a thought which is both conscious and determinate prior to any expression in natural language sentence.
The choice between alternative words in expressing a thought.

The ambiguity of natural language sentences proves that thoughts cannot be identified with natural language sentences.

Creative thinking does not require language

The difference between thought and literal expression.

Now 1-7 enables Carruthers to look seriously at the reflective theory of thinking and language with suspicion. In the preface of his book Language Thought Consciousness (1996), Carruthers mentions that he is forced to abandon such a unified account in the face of the above evidences. Thus he wants to develop the hypothesis which states that, the perceptual state has available to conscious higher-order thought in order to be phenomenally conscious, which leads him to further to propose an alternative standpoint about the independence of phenomenal consciousness from language.

Carruthers claims that there exists natural necessity to the fact that conscious thinking in human being involves natural language. This natural necessity thesis may be stronger or weaker and he accepts natural necessity in its weak form that some of our conscious thinking takes place in natural language. Such a defense invites a comparison with RT theory and Dennett’s multiple draft theory.

1) RT theory considers conscious state as an event or state determined by its availability to thinking, but for Dennett, it is determined by accessibility to linguistic report.

2) According to RT theory, reflexive thinking have some executive roles in the life and cognition of an organism. While Dennett argues that thinking in question is mere disposition to make reports. RT theory argues that human cognition are so structured that their experiences and thoughts are regularly made available to acts of thinking which are in turn made available to further thinking. RT theory defends that
in order to attain a phenomenal feel. a perceptual state must be present to a faculty of reflexive thinking. In addition to a theory of mind faculty, we need a capacity to think about and have immediate access to one’s own occurrent thoughts on regular basis. Thus Carruthers is forced to reconsider the role of language in conscious thinking which ultimately led him to abandon any form of parallelism within his naturalistic approach.

3.4. Structure of Dispositionalist HOT Theory, Its Explanatory Power

What he calls a reductive explanation phenomenal consciousness, according to Caruthers must explain. What he calls a reductive explanation phenomenal consciousness, according to Caruthers must explain.50

1. The subjective aspect of phenomenally conscious experience;

2. The intrinsic properties of phenomenally conscious states which are non-relationally individuated on the basis of commonsense intuition;

3. The ineffability (indescribable and incommunicable);

4. The privacy of experience;

5. The infallibility (and not just privilege) of knowledge of the properties of their phenomenally conscious experiences; and

6. The explanatory gap

Most of the first- order theories maintain brute identity between phenomenal states and brain states. This is to give up the goal of seeking reductive explanation of phenomenal consciousness. Carruthers says that if we can explain the first feature satisfactorily we are natural realist about phenomenal consciousness. Other features must be explained by making rise of an alternative theory which has more explanatory power. We have seen in the initial section that how Carruthers respond to the each of these features. For him, the explanatory power is due to dual analog intentional content is available to higher- order thought. He claims that his version of
dispositionalist theory can explain (explain away) all of the above mentioned six features. And there is no such explanatory gap. It is closed in principle.

The dispositional account of belief is not new. Ryle (1949) is considered as the forefather dispositional account of belief. It is regarded that Ryle is supporter of behavioural dispositionalist view. But we can see an element of phenomenal dispositions in Ryle’s writings. For example, he writes “certainly to believe that the ice is dangerously thin is to be unhesitant in telling oneself and others that it is thin, in acquiescing in other people’s assertions to that effect, in objecting to the statements to the contrary, in drawing consequences from the original proposition and so forth. But it is also to be prone to skate warily to shudder, to dwell in imagination on possible disasters and to warn other skaters. It is propensity not only to make certain theoretical moves but also to make certain executive and imaginative moves as well as to have certain feelings”. The passage shows that Ryle defends behavioural, phenomenal and cognitive dispositions. There may be dispositional stereotypes which are hybrid of these dispositional stereotypes. These dispositions are irreducible to a single disposition. For example, disposition to search something anxiously. I think Carruthers support a hybrid of phenomenal dispositional stereotype and cognitive stereotype. While according to Carruthers, there a number of different kinds of disposition. He thinks it is an open question which kind is involved here.

Dispositional means being disposed to do and experience certain kinds of things. it can be characterized by means of condition statements of the form: if condition C holds, then object O will (or likely to) enter in state S. O’s entering (or remain in) in state S. may call the manifestation of the disposition C is the condition of manifestation of the disposition and the event of C’s obtaining is the trigger. A dispositional stereotype is a stereotype whose elements are dispositional properties. We can classify the dispositional properties belonging to belief stereotype into three types.
1. **Behavioural dispositions**: this includes both verbal non-verbal behaviour.

2. **Phenomenal dispositions**: phenomenal disposition is the disposition to undergo certain kinds of subjective phenomenal experience such as the disposition to feel surprise etc. For example the dispositions to say silently to oneself that there is “dog in the outside”.

3. **Cognitive dispositions**: these are not characterized wholly through phenomenal. These are dispositions to draw conclusions entailed by the belief in question or acquire new desires or habits consonant with the belief.

The anti-behaviourist objection to disposition does not affect phenomenal dispositional account. Thinkers support these objections argue that there exists only a loose connection between mental states behaviour and argued that Putnam’s Super Spartans and Strawson’s whether watchers though they lack beahavioural dispositions they have phenomenal and cognitive dispositions. According to Putnam, in the ‘Society of Super Spartans’, the creatures feel pain but do not possess behaviours which are typically associated with pain. As Strawson argues, weather watchers who have belief and desire about but are constitutively not able to act on the beliefs and desires.

Carruthers’ alternative theory is proposed along the following lines. Carruthers says his aim is to provide a reductive explanation of phenomenal consciousness, by which he means that it "describes a way of linking together cognitive structures and contents (in terms which do not themselves presuppose phenomenal consciousness), any instantiation of which is supposed to be metaphysically sufficient for phenomenal consciousness to occur". Phenomenal dispositional account of consciousness does not endorse reductionism while functionalist account tries to give a reductive explanation. One of the disapprovals to representational theory is that since they are disconnected entities they can’t give an explanation of belief which
is a continuous phenomenon. Phenomenal dispositional account of belief is in agreement with this continuous nature of belief. This account has the capacity to explain both peripheral and central cases of believing. It is argued that this account is (both philosophically and scientifically) a handy tool. It is phenomenal, since a vital position is given to first-person subjective experience or phenomenology. Since Carruthers accepts the subjective aspect of phenomenal consciousness and trying to give a reductive explanation through representational theory, we can count his theory as a mixture of dispositional and functional account.

In his 2000, Carruthers argued that the availability of intentional content to HOT transform that into a phenomenally conscious one. Carruthers claims that capacity for HOT can be retained in the absence of language and phenomenal representations are analog representations held in short term memory store, the duty of which is to make this representations available to higher-order thought. He now abandons the claim that in order to conscious higher-order thought themselves be conscious. The main difference between his new theory and old theory is shown in following table.

**Figure: 3.5. The Difference between Dispositionalist HOT Theory and Reflexive Thinking Theory**

<table>
<thead>
<tr>
<th>Dispositionalist HOT Theory</th>
<th>Reflexive Thinking Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus is mainly on reductive explanation of phenomenal consciousness; closes the explanatory gap in principle</td>
<td>Focus is mainly on the structure of human consciousness</td>
</tr>
<tr>
<td>Consciousness experiences are available to HOT which are not necessarily conscious one.</td>
<td>Conscious experiences are available to conscious HOTs reflexively.</td>
</tr>
</tbody>
</table>

The difference between dispositionalist HOT theory and reflexive thinking theory is that in reflexive thinking theory, language and imagination has a role to play in conscious thinking. In reflexive thinking theory,
conceptual thinking (reflexive thinking) operates drawing upon the resources of language and perception. So our conscious thoughts will take the form of imaged natural language sentences. But Carruthers argues that explanation of phenomenal consciousness, we need not go beyond mind-reading capacity. He differentiates the actual structure and explanatory structure and says that reflexive thinking theory explains the actual structure of human consciousness. Seager views that Carruthers retreat is just ‘strategic’. It is just that the full featured reflexive explanation is not required for the “restricted purpose” of explaining consciousness. Carruthers denies that reflexive thinking theory as a theory of phenomenal consciousness, because of two reasons.

1. There may be phenomenally conscious creature which lacks that cognitive architecture. Carruthers argues there is good reason to suppose structured HOTs are independent of language. More accurately, there is good reason to think that mind-reading ability capable of structured HOTs would have evolved prior to the appearance –and/or mind-reading remains absence – of natural language.

2. On the issue of explanation of phenomenal consciousness, reflexive thinking theory becomes explanatorily outmoded. Carruthers argues that the fact that analog experiential content is available to a concept wielding system containing recognitional concepts of experience is enough to explain phenomenal subjective aspect of experiences. That means experiential content is available to HOTs is enough to explain phenomenal consciousness, not to conscious HOTs as reflexive thinking theory argues. For him, the better option of reductive explanation of phenomenal consciousness is dispositionalist HOT theory.

In what follows, we shall explain the core points of Carruthers’ new theory of consciousness. Carruthers’ account of consciousness is
dispositional higher-order thought theory. It is dispositional because it treats conscious states as nothing more or less than being disposed to do and experience certain kinds of things. His theory defends a type of phenomenal realism because it gives central place to subjectivity or phenomenal aspect of consciousness. According to Carruthers, the capacity for HOTs is independent of language and hence phenomenal consciousness is independent of natural language. The function of our mind-reading capacity is to represent, process and generate structured representation of mental states of ourselves and others. It is argued that mind-reading evolved prior to language and so that mind-reading functions independent of language in modern human also. It is argued that communicative intentions are only possible for beings with highly developed and sophisticated mind reading faculty\textsuperscript{59} and communication presupposes higher-order thought. For example, thinkers in Gricean tradition believe that language began with early hominids, using arbitrary one-off signals to communicate with one another, requiring them to go for elaborate higher-order reasoning concerning each others' beliefs and intentions. Gomez argues that limited mind-reading existed prior to evolution of language and the language and capacity for structured HOTs are co-evolved\textsuperscript{60}. Carruthers argues that this view does not affect his thesis that structured thought are present in the modern man in the absence of language.\textsuperscript{61} He claims that argument from deaf people who grow isolated from deaf communities but engage in complex pantomimes to exchange their meaning; show that they possess higher-order thought in the absence of natural language. But thinkers like Peterson and Siegel, suggests this evidence from late signers as the strong support for the involvement of natural language in mind-reading. Carruthers replies that thinkers do not succeed to control for the fact that late signers may have difficulty with mentalistic vocabulary and so may have difficulty in understanding in the text questions. Mind-reading is a distinct language independent module and one of main functions of which is to interpretation of speech\textsuperscript{62}. Evidence from competence of aphasics who have lost their
linguistics capacity owing to brain damage proves that their mind-reading faculty continues to be undamaged.

All that is required of HOTs, according to Carruthers, is that they are available to do the meta-cognitive job of distinguishing between and conceptualizing our experiences when called upon. HOT need not be actively engaged in this process at each moment of conscious experience; we simply require the disposition to token the HOTs in order to be conscious. Bermudez says that a dispositionalist version of the HOT theory might seem to offer that a state might become conscious not in virtue of actually feeding into higher-order planning, but rather in virtue of its potential for supplying into such planning and this view does not give us the explanation for how qualia emerge? Why or what should might or might not happen to sensory information further down stream influence whether it is conscious or not?

In order to explain phenomenal consciousness we should explain what phenomenal consciousness is or what constitutes it. Phenomenal consciousness is constituted by availability of analog contents to HOTs. This availability to HOTs is condition which is naturally or metaphysically adequate to occurrence of phenomenal consciousness. So in all possible worlds in which there are organisms with analog intentional state available to HOTs in the correct kind of way; organism is also phenomenally conscious. The structure of his theory can be represented as follows.
Carruthers claims, perceptual contents are available to short-term memory stores N and C and conscious experience occurs when contents in C are available to cause HOTs about themselves by virtue of events in C acquire dual contents. Theory of mind is one of the most important downstream consumer systems, the duty of which is to understand ‘is-seem’ distinction and experience as subjective representational state of perceiver. These consumer systems are capable of generating recognitional concepts of experience based on the first-order analog contents of experience. For Carruthers, the very same perceptual states which represent world to us can at the same time represent the fact that those aspects of world are being perceived (so it is dispositional). Attachment of first-order content to HOT consumer module (ToM) bestows it dual content. (seems red a and experience of red a) For example, the presence of HOT consumer system including theory of mind capable of us to generate recognitional concepts of experiences like seems red or experience of red. The distinction between conscious and non-conscious experiences are; conscious experiences (percepts) are made conscious in virtue of their being made available to the subject's higher-order thought (HOT) forming module via a special short-term memory store C. Non-conscious experiences -- such as those of the absent-minded driver and blindsighted subject -- are not made available to the subject's HOT forming module by way of being held in C; rather, they are
held in a different short-term memory store N, from which they are made available to the subject's motor-output system, either directly or by way of the subject's action-schemas module. Carruthers argues that Cartesian concept (pure recognitional concept) have no independent existence (so no substance dualism) or it is a parasitical concept depending upon theoretical understanding of idea of subjectivity. (ToM), Carruthers argues that since his mission is to provide a reductive explanation, we needn't go beyond dispositionalist HOT theory because he believes that original dispositionalist HOT theory can explain away both conceivability of inverted and absent phenomenal properties and our temptation to believe in qualia. It also explains why conscious experiences possess a subjective seeming aspect (feeling aspect). In order to explain these problematic features we need only simple HOT neither conscious HOT nor linguistically vehicled HOT is needed. Carruthers almost underplays the role of language with a quick-fix solution to the sort of a parallelism which enjoins whatever way we understand the phenomenal qualia runs parallel to the way we device the higher- order theory about our thoughts.  

3.5. A Unified theory in the Making?

At the beginning of the chapter the plausibility question has raised with a view to critically access naturalistic theory of phenomenal consciousness. It was argued that Carruthers considered the relative independence of language which forced him to move in the direction of phenomealist theory of consciousness with the support of naturalism. This picture was gradually modified with the integrationist portrait in which perceptual experience with propositional attitude states is unified. Thus the movement was from a large scale distinction between linguistic and non-linguistic variety of the tree of consciousness (in its first two versions), and still is ready to go beyond. Thus the question whether a purely naturalistic theory of phenomenal consciousness is plausible is kept open. Our first observation is that Carruthers deviates from the orbit of naturalism to
embrace a scientifically – oriented minimalist program offered by Chomsky (Carruthers agrees with it through personal correspondence). Still physicalism is an option, but the combination of brain research and language provides an advance that reached its completion in minimal rationalism. Our second observation is that this was assisted by detailed introduction of dual system theory which has not been fully unpacked till recently.

The third observation is that his views on the question of flexibility, malleability and plasticity of human thinking must be lauded. Consequently the very idea of modularity goes through tremendous changes. The fourth observation is that with the introduction of mirror- neurons, which is till in the frontiers of research. Carruthers gets the real integration of language and thinking and use it as launching pad to explain consciousness in the light of theory-of- mind- module which is proposed as a scientific model with a causal structure of its own. The question ‘unified in the making’ is justifiable only in this background and answered in the affirmative, but then since it is premature to arbitrate the full extent without more input from research on cognitive science. The fifth observation is that the distinction between first-order and second-order may become submerged in much the similar manner as the distinction between conscious and non-conscious which is now subsumed by dual path of the architecture of the brain. The sixth observation is that the movement of a higher-order thought availability is now metamorphosed into availability for awareness, which still seen to keep a distance from the first-order theory but ultimately a thin line of demarcation may yet remain. The seventh observation similarly is that it looks plausible that a convergence between the symbolism (Fodorian modularism) and minimalism (Carruthers modualrism) is still open.

Thus, we find that in the later stages of development of Carruthers’ theory the question about consciousness is gradually transformed into one about language and thinking. So his earlier thesis of language is replaced with more naturalistic consideration of language as integral. In his 2002,
Carruthers defends the idea that natural language is the medium for non-domain specific thinking, serving to integrate the outputs of a variety of human domain-specific conceptual faculties (or central cognitive, domain quasi-modules). Earlier, Carruthers merely distinguished between the communicative and cognitive conception of language and supported the latter. It is argued that natural language syntax is crucially necessary for intra-modular integration. The central cognition functions accessing, controlling and influencing the representations of language capacity.

Carruthers, in this connection, analyses weak and strong claims regarding the thesis of involvement of natural language in thinking and discards various strong claims (such as conceptual necessary thesis), and weak claims (such as language is necessary for acquiring concepts, and language scaffolds thought process). The weak view of language as the medium of thought does not show that language is actually involved in thoughts. The evidences suggested by thinkers to defend this view only shows that parallelism of linguistic and cognitive development. Another weak claim is extracted from Vygotsky and claims that language and speech help to scaffold the cognition. Clark’s (1998) supra-communicative account also shares this view of Vygotsky and treated language as cognitive tool enhancing the range and complexity of cognitive tool. Some extremely strong view defended by thinkers like Dummett (1981) Davidson (1975, 1982) and Wittgenstein. Another strong view is Dennett’s Joycean machine model. According to this view, language is the medium of all conceptual thinking and arrival of language is responsible for serial and compositionally structured cognitive architecture (Joycean machine). For Dennett, conceptual thinking runs on a stream of linguistic representation. Somewhat similar account is defended by Bickerton (1990, 1995). For him, before the evolution of language, the capacity of human cognition is limited. Our off-line thinking is conferred by language. Carruthers rejects these strong views of Dennett and Bickerton because of two reasons. The first one is that they underestimate the cognitive capacity of pre-linguistic children.
and animals. The second criticism is from modularity of central system, which exists prior to modular language faculty. Carruthers says that all of our hominid ancestors possessed sophisticated social intelligence. Modularity of central cognition gives support to early ancestors' intelligence. Carruthers', central modularity is different from Fodor's notion of modularity. Because as he envisages, central modules have no proprietary transducers, no neural hardwires and they might not be fully encapsulated, but they are innately channeled computational system (which shares with Fodor). Systems responsible for naive physics, mind- reading, folk biology, intuitive number and geometrical system (for re-organizing and navigating in unusual environments), etc. are example to such conceptual modules. So theory –of- mind is a developed form of a pre- existing social cognitive modules and folk biology is a developed form of a pre- existing foraging system. Carruthers argues that cognitive conception of language is well suited with nativist, modularist view of language and mind. Carruthers assumes that mind contains conceptual in addition to various input and output modules (conceptual modules take conceptual input and deliver conceptual output). The thesis he proposes is that central process crucially implicates natural language. Not only has our conscious propositional thought involved language, but all non- domain specific reasoning of a practical sort (whether conscious or non- conscious) is conducted in language.

According to Chomsky's minimalist programme , at the level of linguistic representations (logical form or LF) language faculty interfaces with central cognitive system. Following Chomsky, Carruthers argues that all cross- modular thinking consists in the formation and manipulation of LF representations. Language faculty has access to the outputs of various central process modules out of which it can built LF representations which combines information across domains. Language consists of two different sub-systems of production and comprehension. LF representation by production sub-system are used to generate phonological representation in “inner speech” that will be send to comprehension sub- system which in turn
made available to central system. Carruthers(2000)argues that, if the perceptual and imagistic states are available to higher-order thought generated by ToM, they become phenomenal conscious. So thoughts become conscious and non-conscious depending upon whether they are available to HOT system or not. Carruthers does not want to endorse the thesis that language is the only medium for intra-modular communication, but it is one of the main medium for such communication. Carruthers puts forward a set of experimental evidences to defend his thesis of language as vehicle of intra-modular integration. It is proved through different experiments that pre-linguistic children and rats fails to integrate geometric and other information because they lack language. So Carruthers argues that language helps human beings to integrate geometric with non-geometric information into a single thought.

In his (2004), Carruthers argues that his is a dispositionalist HOT version of HOP theory, which is a form of HOT theory that, when combined with consumer semantics, can also count as a kind of HOP theory and it will emerge as the overall winner. Only dispositionalist HOT version of HOP can give us a reductive account of phenomenal consciousness which is both successful in it and reasonable on other grounds. So his theory provides a reductive explanation of phenomenal consciousness in terms of some combination of intentional (or representational) content and causal (or functional) role. It proposes a set of higher-order analog – or ‘experiential’ – states, which represent the existence and content of our first-order perceptual states, that the theory deserves the title of ‘higher-order perception’ theory, despite the absence of any postulated organs of the higher-order perception. Carruthers says purely recognitional concepts of experience need to be based on higher-order experiences of our (first-order) perceptual states; and he says that the most credible account of higher-order experience theory is not the ‘inner sense’ theory, but rather one that can be derived from dispositional higher-order thought theory, of the variety defended by him. Higher-order experiences with higher-order analog
contents can come to exist by virtue of the availability of first-order analog
contents to a ability of higher-order thought, without embracing ‘inner
scanners’ or any organ of inner sense. And it can be by virtue of the
existence of such higher-order experiences, we come to form purely-
recognitional concepts of experience, based on those higher-order analog
contents. It seems Carruthers himself not satisfied with a naturalistic
theory, which is still to be claimed to default theory. (It is a theory that works
in the absence of a better theory).

In what follows, let us analyze Carruthers latest minimalist position on
the role natural language in cognition. There is general agreement that
conceptual modules will have limited connectivity with each other. Two or
more modules regularly pass their outputs to a third (“downstream”, module)
function of which is to unite those outputs into a single thought. The role of
language according to classical or systematic modularity is to receive output
from all conceptual modules. In other words, the evolutionary function of
language is receiving, conjoining, and reporting information received from
any conceptual module. This function of language makes human cognition
as distinctive and by which human cognition enjoys flexibility and

cjoinability of content. Natural language sentences play a distinctive
constitutive role in cognition. Carruthers views that the role of language in
cognition isn’t to unify the outputs of some otherwise unconnected modules,
rather, language has a quasi-executive task of helping to control the
subject’s attention and on-line goals. Carruthers argues, representations of
natural language sentences have an important role to play in certain aspects
of distinctively human thinking and reasoning and he maintain that, the role
of language is to unifying and combining the outputs of different central /
conceptual “modules” (Carruthers, 2002). So for him, language is not only a
vehicle but also a content combiner. Carruthers here plays Chomsky
against Fodor. Chomsky’s (1995) logical form” (LF) is a stage of linguistic
representation, where the language ability interfaces with central cognitive
systems. The new natural language hypothesis is that all such cross-

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modular thinking operates by accessing and manipulating the representations of the language faculty. Carruthers argues that, the language faculty can construct LF representations which bring together information across domains and right to use the outputs of the various central-process modules. When LF representations built by the production sub-system are used to generate a phonological representation, in “inner speech,” that representation will be consumed by the comprehension sub-system and made available to central systems (One of these systems is ToM module). Carruthers maintains that language is the vehicle of non-modular, non-domain-specific, conceptual thinking which integrates the results of modular thinking. So according to Carruthers, the perspective of natural language is, not just that our conscious propositional thinking involves language but that all non-domain-specific reasoning of a non-practical sort (whether conscious or non-conscious) is carried out in language.70

In its latest development dispositionalist HOT theory takes hold of the form of dual content theory duly supported by generally recognized dual system theory. Dual system theory, defends that there are two sytems in human brain responsible for reasoning process. System 1(systems responsible for occurrence of First-order representations. dorsal / parietal-lobe system is concerned with the on-line guidance of movement) contains a group of parallel working fast non-conscious systems. Most of the mechanisms of System 1 are also present in other animals. Carruthers argues that this system consists of a collection of semi-independent modules (in his sense). Since it is semi-independent modules, Carruthers notion of modularity is a disguised criticism to Fodor’s minimal peripheral modularity. System 2 (systems responsible for occurrence of higher-order representations or neurologically speak ventral / temporal-lobe system makes its outputs available for belief-formation and planning,) is unique to human beings and a single system can nevertheless function in diverse
'manner' corresponding to belief, desire, and decision-making. (central conceptual systems are also modular in this sense).

System 2 principles are malleable and can be influenced by verbal instruction, and they often involve normative beliefs. Carruthers claims that System 2 is realized in cycles of operations of System 1. It is argued that in response to perceptual or linguistic input, the central modules generate a variety of representations of natural language sentences (inner speech), which have an important role to play in certain aspects of distinctively human thinking and reasoning. Domain-specific outputs are made available to the language faculty, which combines some of them into a sentence which is displayed in imagination, processed by the comprehension sub-system and made available to the central modules once again. The latter process the resulting input, generating new domain-specific output, which is again made available to the production sub-system of the language faculty which formulates some of it into a new sentence; and so on. We can hypothesize that in its extended naturalistic form; Carruthers’ theory signifies that for him, a better theory must integrate every element into a whole including language.

Carruthers almost minimizes the role of language in theory of consciousness and stands for a parallelism which defends that the phenomenal qualia and higher-order thoughts can run parallel. The satisfactory naturalistic theory of consciousness should consider both the so-called worldly subjectivity and experiential subjectivity. He takes phenomenal consciousness as strong sense or tries to explain the experiential subjectivity. The basic idea is that the conscious status of an experience is due to its availability to higher-order thought. Now consumer semantics can explain why a state has the content it has, but that is not quite the same as explaining why the state is conscious in the first place. So Carruthers theory is moving in the direction of primarily a theory of content rather than theory of phenomenal consciousness because he depended on consumer
semantics to defend his theory. The plausibility of new theory of consciousness is marred by ambivalence of Carruthers has shown to language. This is the singular reason why the plausibility becomes suspect. A full-blooded theory incorporating Carruthers higher-order-thought theory is still waiting for him, but in all probability it is plausible that it cannot sponsor challenges to first-order theories, that came to culmination with 2002\textsuperscript{71}, where he makes a fresh departure incorporating dual system theory. It is at this stage, Carruthers endorses middle position between central-peripheral and massive modularity that leads to him to the direction of moderately massive modularity. The earlier argument from introspection with its infallibility or inevitability is brought down without sympathy. The passage from central-peripheral to massively modular and then to the middle path of moderation is still no guarantee for a full-blooded naturalistic theory. Though noticeable to earlier developments, it is a major step that occupies us in the next Chapter.
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